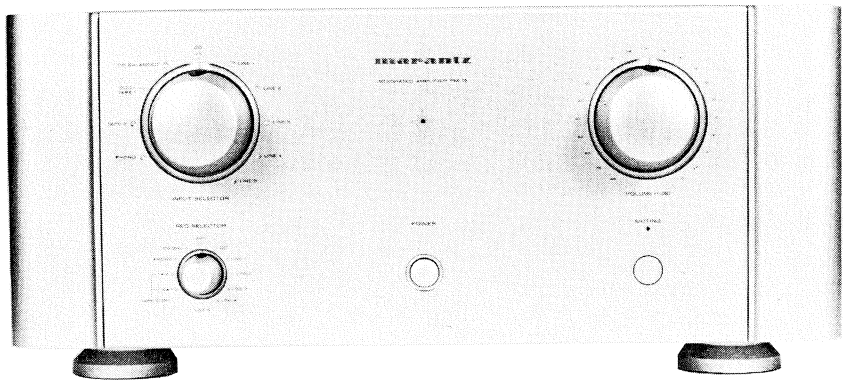
Service Manual

74 PM15/00G

Integrated amplifier



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4822 72 5 51063

marantz®

model PM-15

First issue : 1994/7

PCS 79 226

MARANTZ DESIGN AND SERVICE

Using superior design and selected high grade components, MARANTZ company has created the ultimate in stereo sound. Only **original MARANTZ parts** can insure that your MARANTZ product will continue to perform to the specifications for which it is famous.

Parts for your MARANTZ equipment are generally available at our National Marantz Subsidiary or Agent.

MARANTZ EUROPE B.V.
P.O. Box 80002
Building SFF 2
5600 JB Eindhoven
The Netherlands
Phone : +31-40-732241
Fax : +31-40-735578

ORDERING PARTS

Parts can be ordered either by mail or by telex. In both cases, the correct part number has to be specified. The following information must be supplied to eliminate delays in processing your order:

1. Complete address
2. Complete part numbers and quantities required
3. Description of parts
4. Model number for which the part is required
5. Way of shipment
6. Signature: any order form or telex must be signed, otherwise such part order will be considered as null and void.

ADDRESSES

AUSTRALIA
MARANTZ AUSTRALIA
Figtree Drive
Australia Centre
Homebush, NSW 2140
AUSTRALIA

AUSTRIA
MARANTZ
Hietzinger Kai 137a
1130 Wien
Austria

BELGIUM
MARANTZ EUROPE B.V.
Div. Benelux
P.O.Box 80002
Building SFF 2
5600 JB Eindhoven
The Netherlands

CHILE
MARANTZ DIVISION OF
PHILIPS S.A.
Av.Santa Maria 0760
Casilla 2687
Santiago
Chile

DENMARK
MARANTZ
Horsvinget 5
2630 Tastrup
Denmark

FINLAND
MARANTZ
Kuortanegatan 1
00520
Helsingfors 52
Finland

FRANCE
MARANTZ FRANCE
4 Rue Bernard Palissy
92600 Asnières
France

GERMANY
MARANTZ GERMANY GmbH
Kleine Heide 12
Postfach 4802
Halle-Westfalen
Germany

GREAT BRITAIN
MARANTZ HiFi UK Ltd.
Kingsbridge House
Padbury Oaks
575-583 Bath Road
Longford Middlesex UB7 OEH,
U.K.

GREECE
ADAMCO ELECTR. SA
P.O.Box 21025
Hippocratus Str. 188
Athens 11471
Greece

ITALY
MARANTZ ITALIANA SPA
Piazza IV Novembre 3
20124 Milano
Italy

JAPAN
MARANTZ JAPAN INC.
35-1, 7-chome, Sagamiono
Sagamihara-shi, Kanagawa
Japan

KUWAIT
AL ALAMIAH ELECTRONICS
P.O.Box 8196
Salmiah
22052 Kuwait

NETHERLANDS
MARANTZ EUROPE B.V.
Div. Benelux
P.O.Box 80002
Building SFF 2
5600 JB Eindhoven
The Netherlands

NORWAY
MARANTZ
Postboks 7034
Assiden
3007 Drammen
Norway

PORTUGAL
COREL
Av. da Liberdade
211-2 Esq.
1200 Lisboa
Portugal

SAUDI ARABIA
AL ALAMIAH ELECTRONICS
P.O.Box 5954
University Street
Riyadh 11432
Saudi Arabia

SOUTH AFRICA
MARANTZ S.A.
10 Bond Street
Randburg 2194
P.O. Box 7703
Johannesburg 2000
South Africa

SPAIN
MARANTZ SPAIN
Martinez Villergas 2
Apartado 2065
Madrid 28027
Spain

SWEDEN
MARANTZ
Box 1324
17125 Solna
Sweden

SWITZERLAND
MARANTZ SWITZERLAND
Postfach
8010 Zürich-Müllingen
Switzerland

TRADING
MARANTZ TRADING
P.O.Box 20008
Building SFF 2
5600 JB Eindhoven
The Netherlands

All of the above locations are fully equipped to take care of your total service needs or can advice you. Because various countries have differing configuration requirements, it is necessary that you contact the service facility in your particular country. In the event that there is no service location listed for your country, please contact the nearest facility for the necessary assistance.

In case of difficulties, do not hesitate to contact the Technical Department at above mentioned address.

1. SPECIFICATIONS (DIN)

Power output

FTC 8 ohms (20 Hz~20 kHz) ..... 150 W
DIN 8 ohms/4 ohms ..... 170/280 W

IHF dynamic power

8 ohms/4 ohms/2 ohms ..... 180/310/420 W
THD at 8 ohms RMS rated output ..... 0.005 %
Intermodulation distortion ..... 0.005 %
Damping factor 300

Magnetic cartridge input

Input sensitivity impedance ..... 2.7 mV/47 kohm
Accuracy of frequency response to RIAA (20 Hz~20 kHz) ..... ±0.25 dB
Signal to noise ratio ..... 90 dB

Moving coil cartridge input

Input sensitivity impedance ..... 200 µV/100 ohm
Signal to noise ratio ..... 79 dB

CD/LINE/Tape inputs

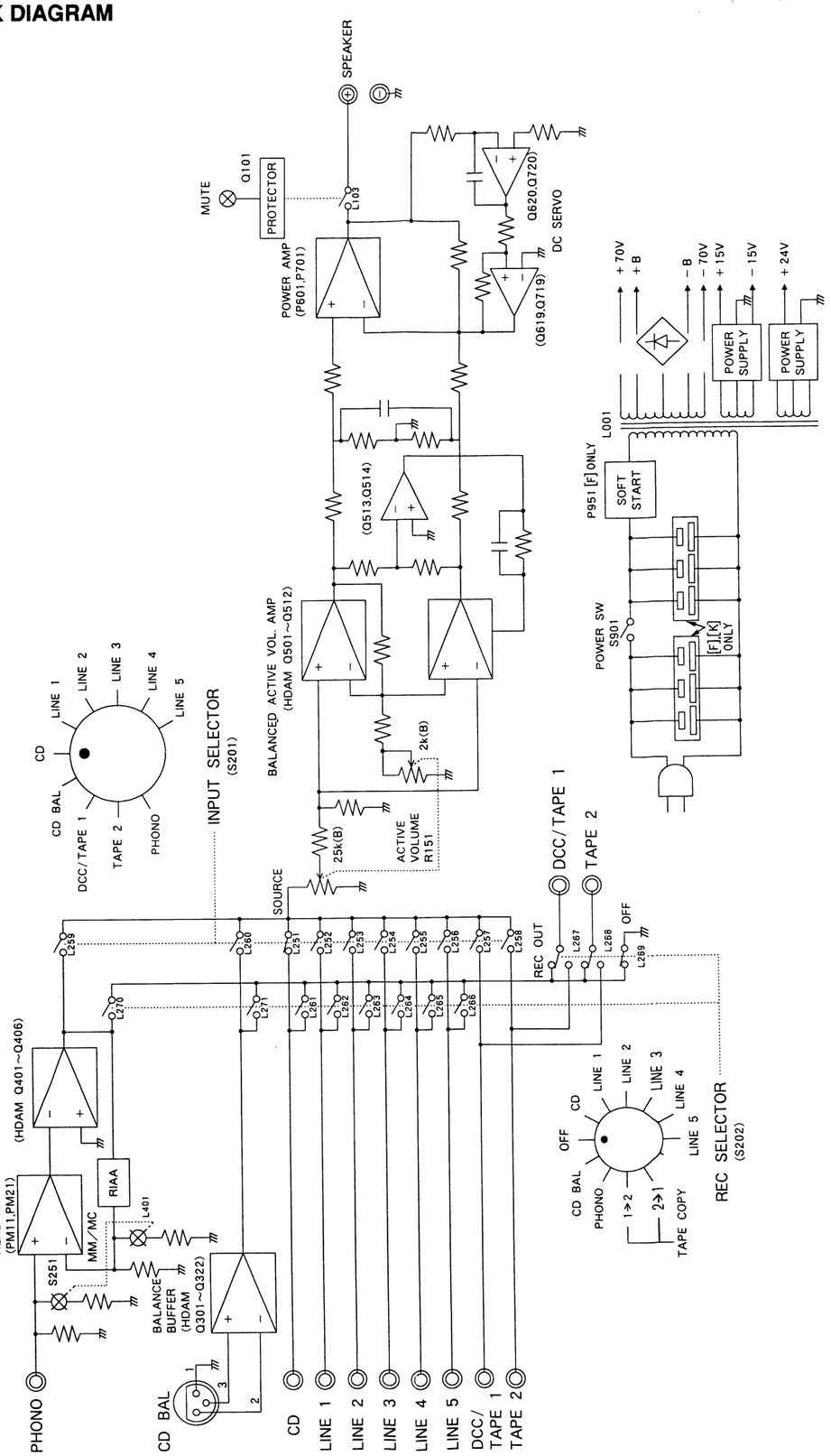
Input sensitivity impedance ..... 170 mV/20 kohm
Signal to noise ratio ..... 93 dB
Frequency response (–1 dB limits) ..... 10 Hz~60 kHz
Channel separation (1 kHz/10 kHz) ..... >85/>70 dB

General

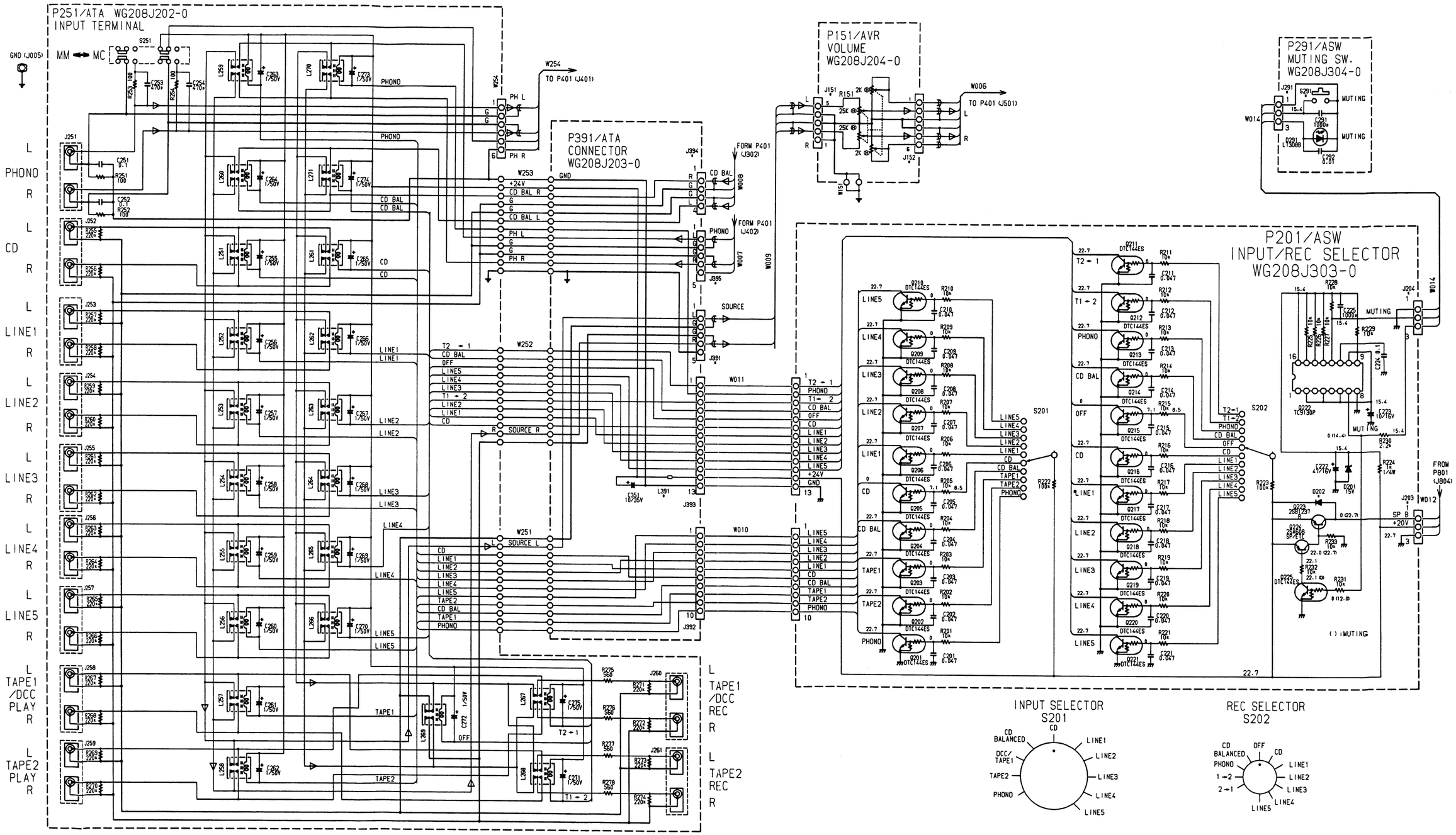
Power Requirements ..... 230/240 V AC, 50/60 Hz
Dimensions
Width ..... 454 mm
Height ..... 201 mm
Depth ..... 467 mm
Weight
Unit alone ..... 32 kg

Specifications subject to change without prior notice.

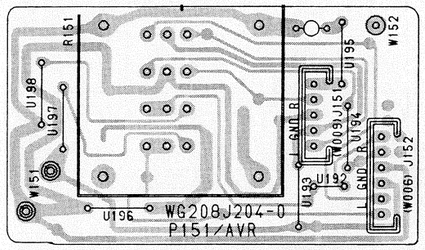
2. BLOCK DIAGRAM



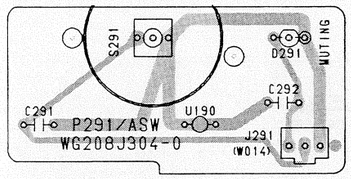
3. SCHEMATIC DIAGRAM AND PARTS LOCATIONS (PATTERN SIDE)



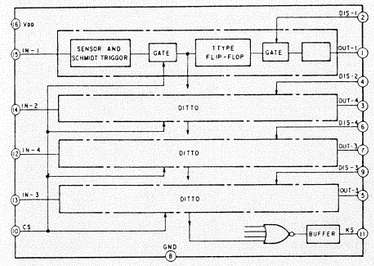
P151 VOLUME



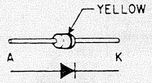
P291 MUTING SW.



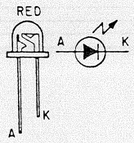
Q222 TC9130P



TC9130P



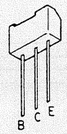
ISS176



LT3D8B

2SA608SP

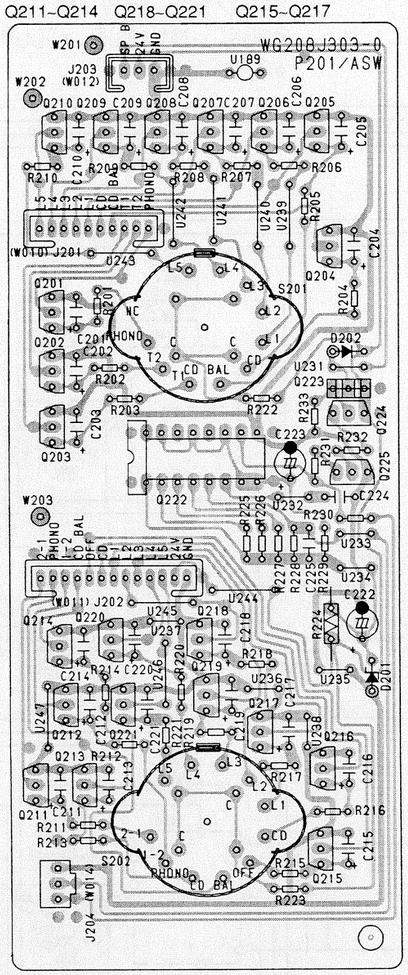
DTC144ES



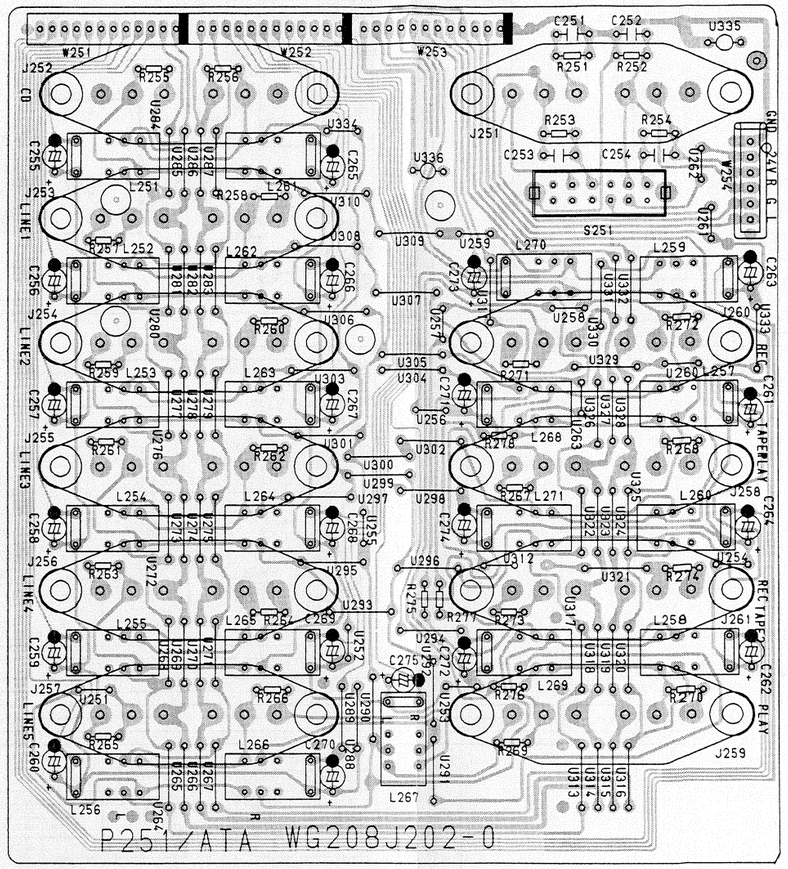
2SB1237(R)

P201 INPUT/REC SELECTOR

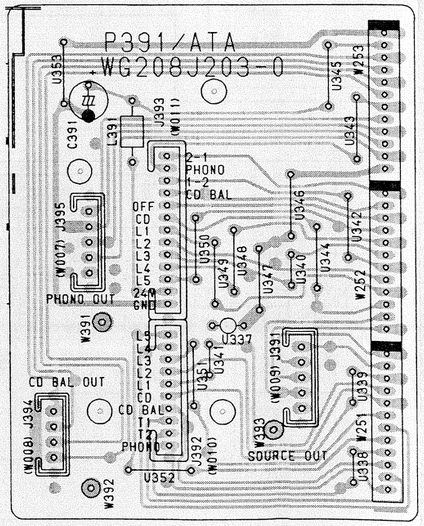
Q210 Q209 Q208 Q207 Q206 Q205 Q204
Q201~Q203 Q222 Q224 Q225
Q211~Q214 Q218~Q221 Q215~Q217



P251 INPUT TERMINAL



P391 CONNECTOR



P401/APH, AVR, ABL
PHONO, BALANCE, VOLUME, AMP
WG208J201-0

P351/ABL
BALANCE JACK
WG208J205-0

CD
BALANCED

HDAM

PM11 PHONO MODULE L

PM21 PHONO MODULE R

W005

W006
FROM P151 (J152)

W254
FROM P251 (W254)

W008
TO P391 (J394)

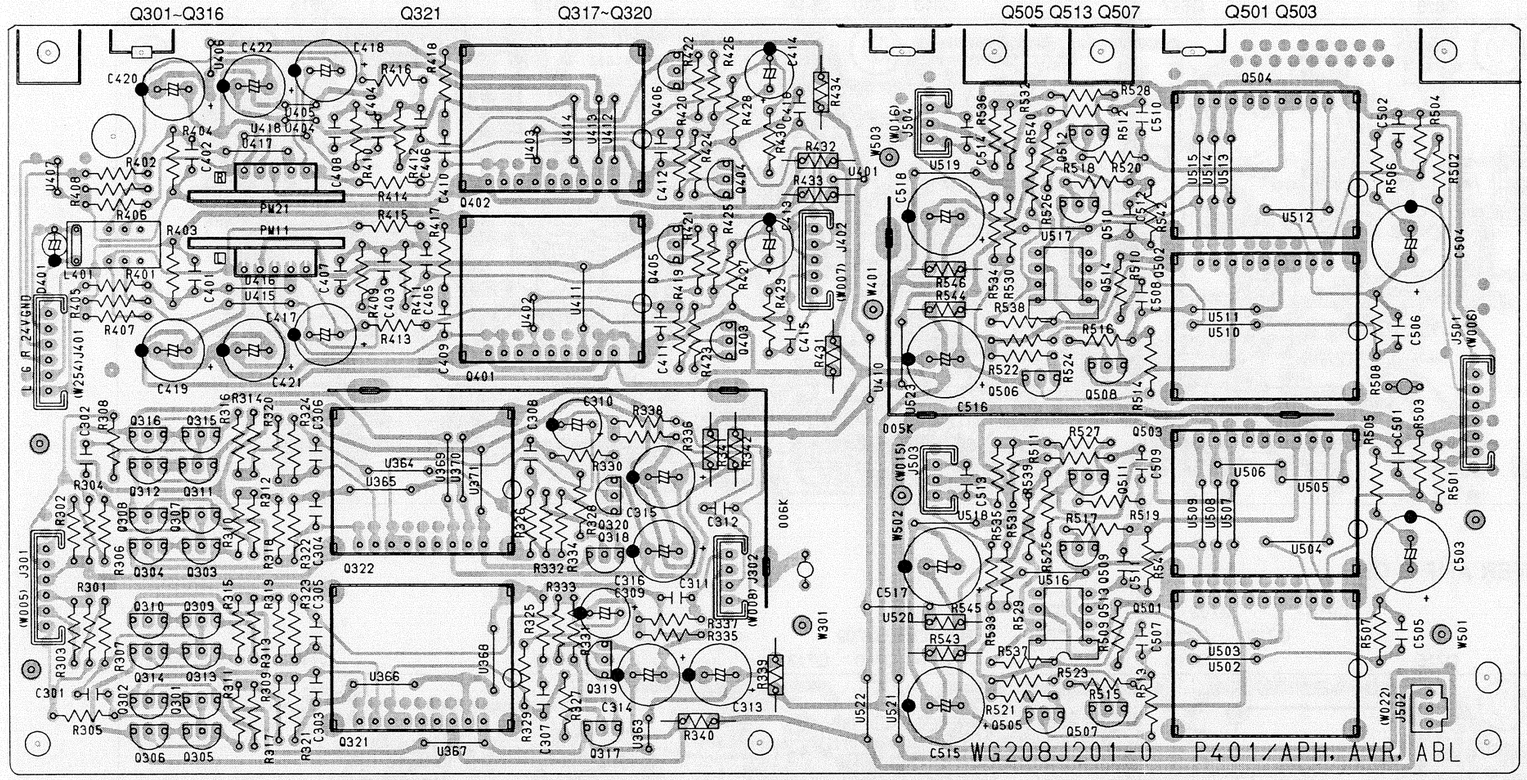
W022
FROM P801 (J802)

W015
TO P601 (J601)

W016
TO P701 (J701)

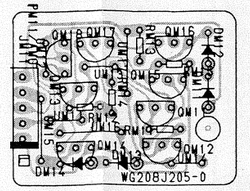
W007
TO P391 (J395)

P401 PHONO, BALANCE, VOLUME, AMP



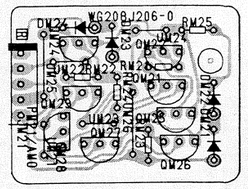
PM 11 PHONO MODULE L CH

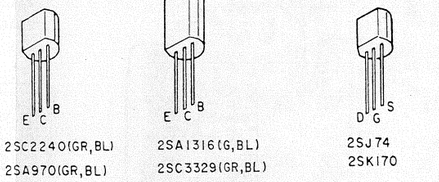
QM18 QM17 QM15 QM16
QM13 QM14 QM11 QM12



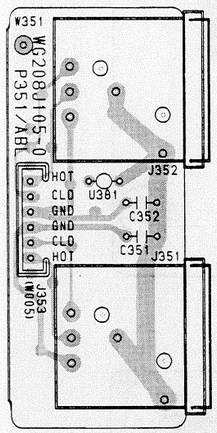
PM21 PHONO MODULE R CH

QM24 QM25 QM22 QM21
QM28 QM27 QM25 QM26

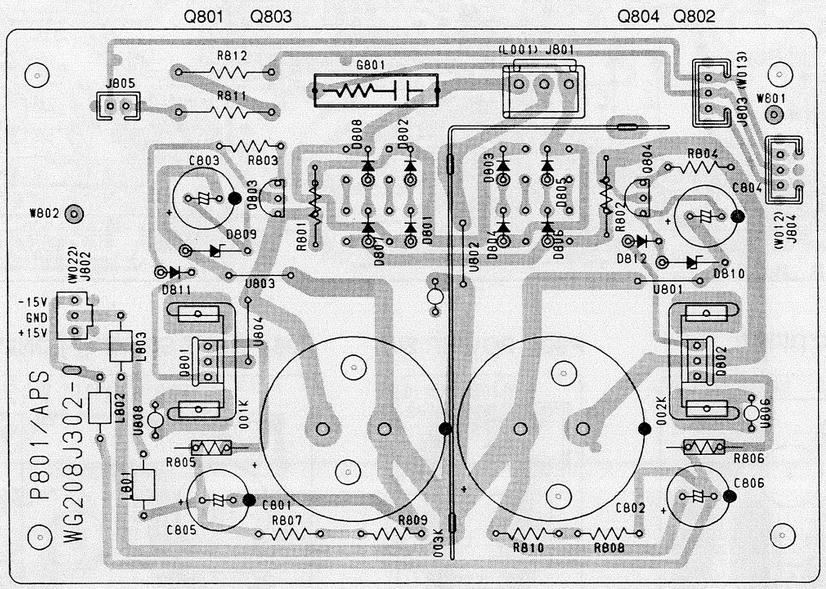


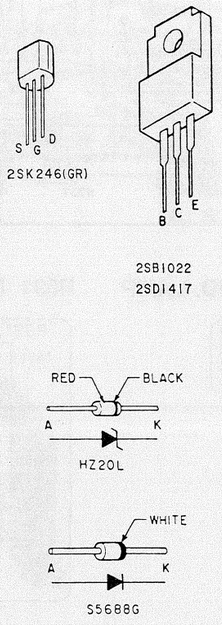


P351 BALANCE JACK

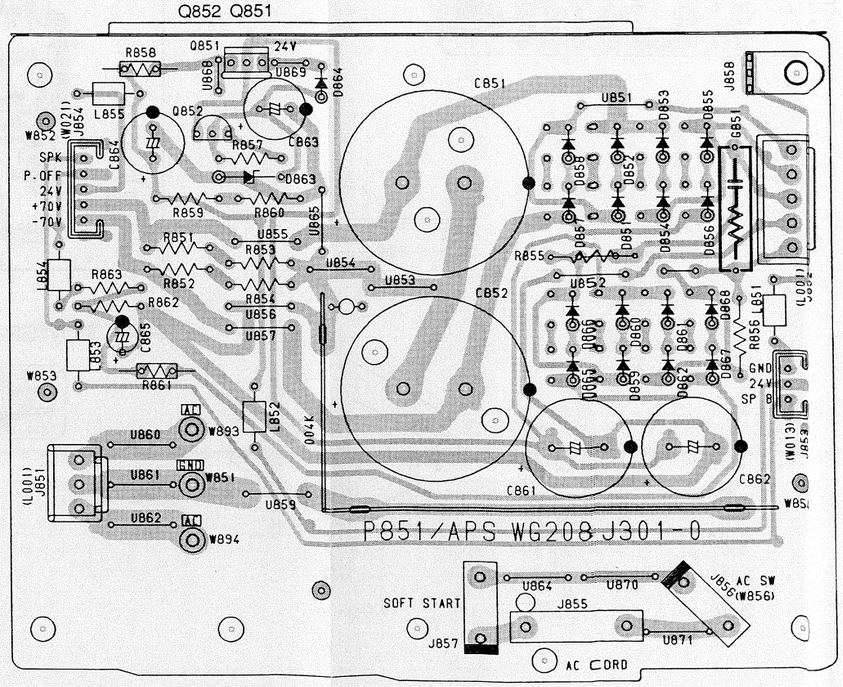


P801 PRE AMP POWER SUPPLY

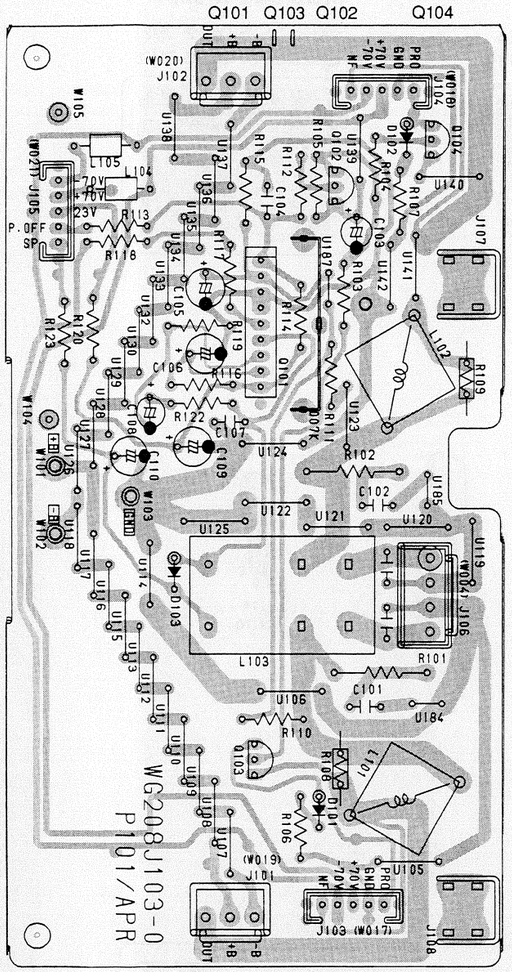


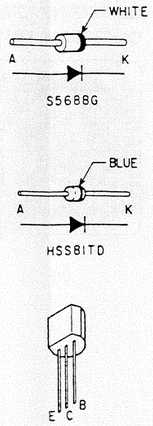


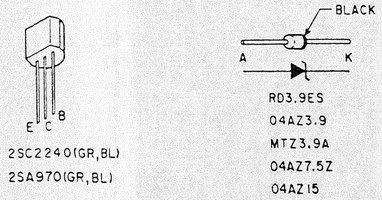
P851 POWER SUPPLY

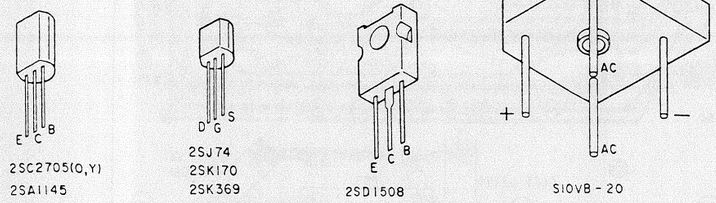


P101 SPK PROTECTOR

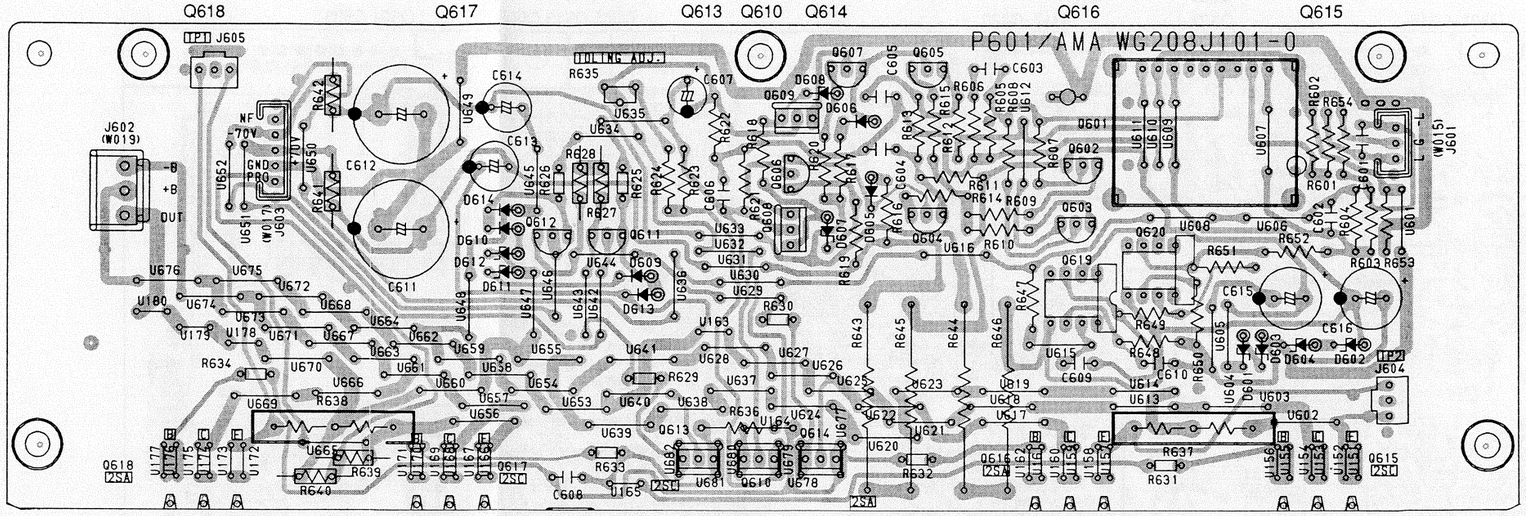




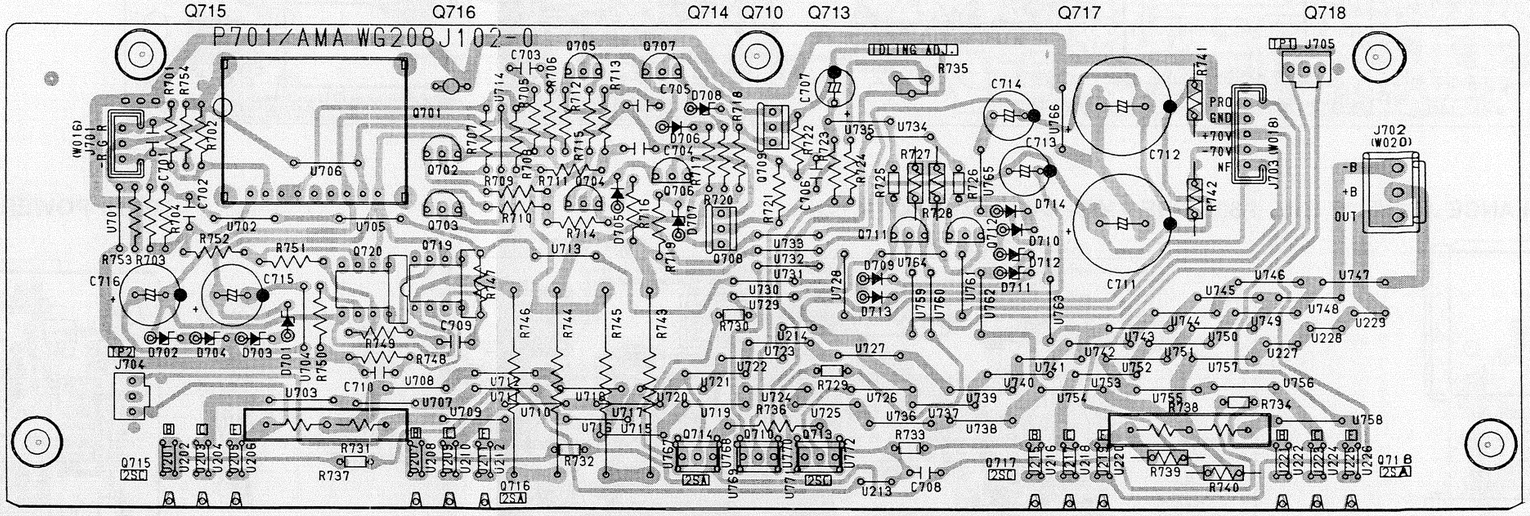




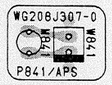
P601 POWER AMP L CH



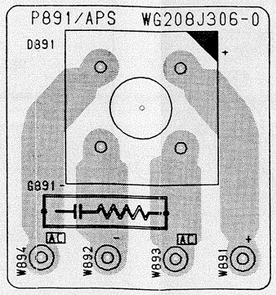
P701 POWER AMP R CH



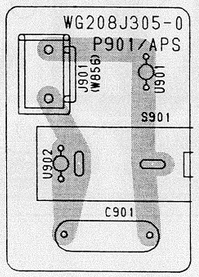
P841 POWER IND. LAMP



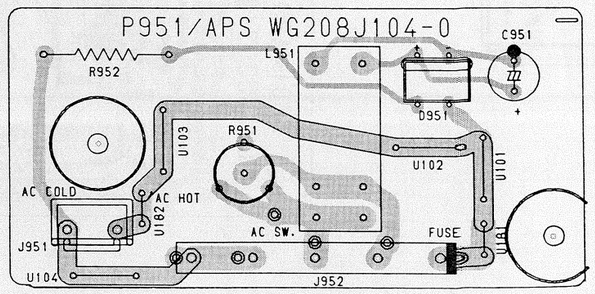
P891 RECTIFIER



P901 POWER SW



P951 SOFT START [F] ONLY



P601/AMA
POWER AMP L
WG208J101-0

P701/AMA
POWER AMP R
WG208J102-0

P101/APR WG208J103-0
SPK PROTECTOR

P801/APS
PRE AMP POWER
SUPPLY
WG208J302-0

P841/APS
POWER IND.LAMP
WG208J307-0

P891/APS WG208J306-0
RECTIFIER

P901/APS POWER SW
WG208J305-0

P851/APS POWER SUPPLY
WG208J301-0

SPK.L

SPK.R

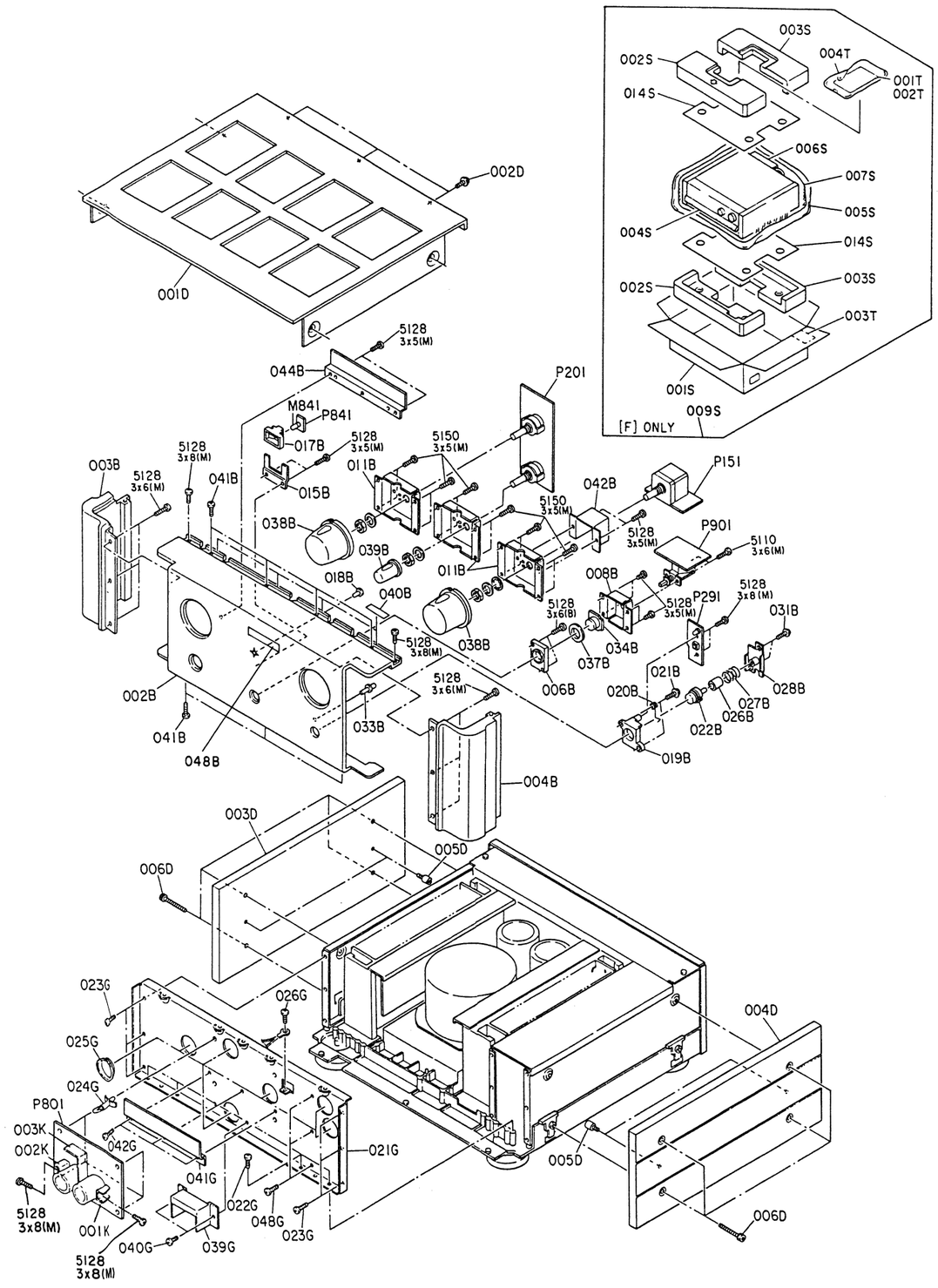
安全上の注意：

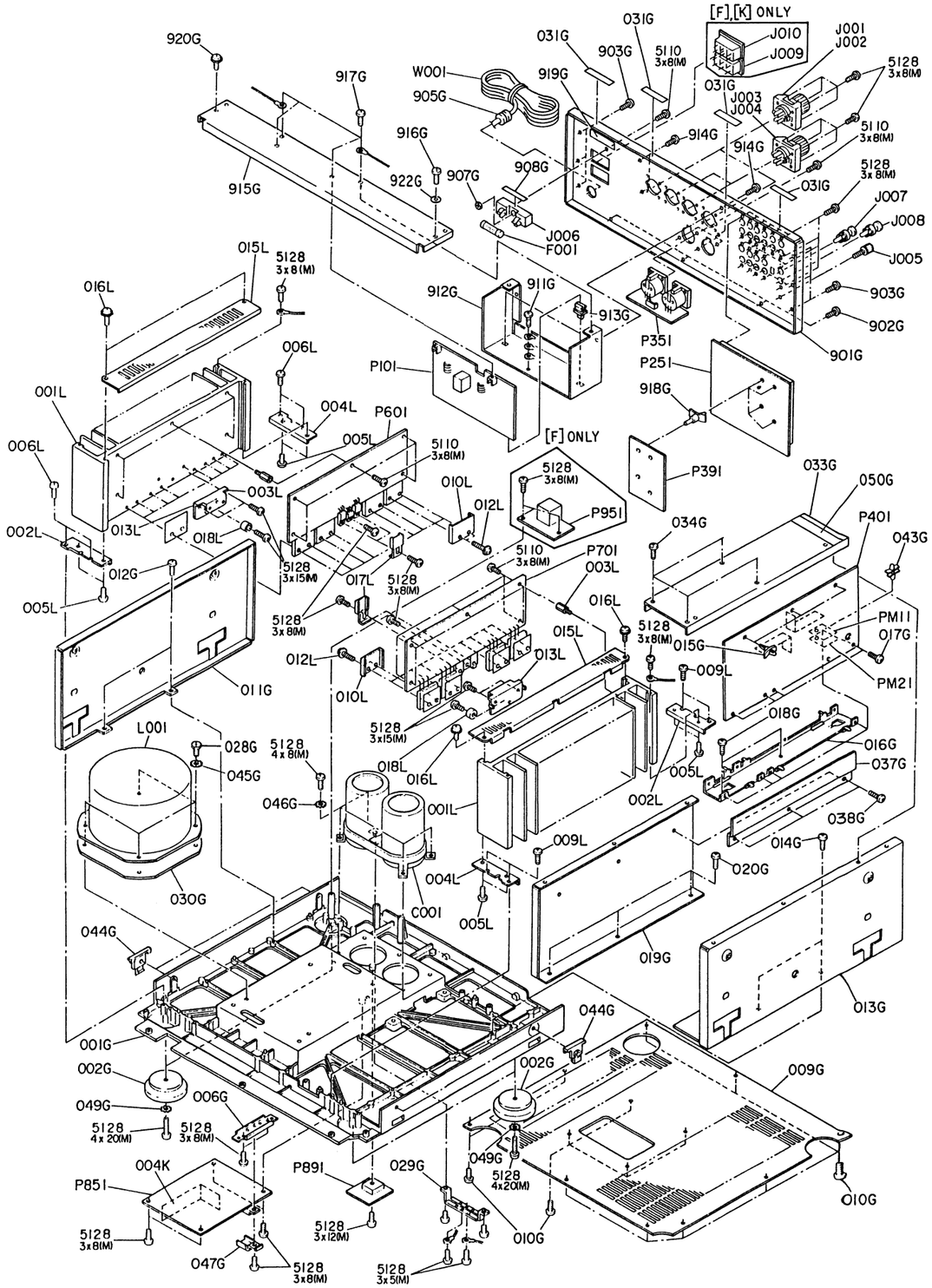
⚠が付いている部品は、安全上重要な部品です。必ず指定されている部品番号の部品を使用してください。

NOTE ON SAFETY

Symbol ⚠ Fire or electrical shock hazard. Only original parts should be used to replace any part marked with symbol ⚠. Any other component substitution (other than original type), may increase risk of fire or electrical shock hazard.

4. EXPLODED VIEW AND PARTS LIST





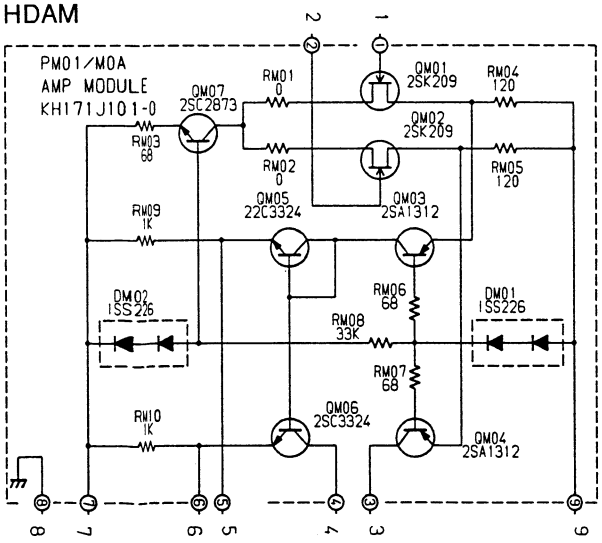
REF. DESIG.	PART NO.	DESCRIPTION
002B	4822 426 51756	FRONT PANEL
003B		ESCUTCHEON L (208J063010)
004B		ESCUTCHEON R (208J063020)
006B	4822 532 40225	BUSHING FOR POWER BUTTON
018B	4822 381 10841	LENS FOR POWER
019B	4822 532 40221	RETAINER FOR MUTING
020B	4822 492 71359	SPRING FOR EARTH
021B	4822 502 12511	B.T.SCREW(W/W)
022B	4822 410 63359	BUTTON ASSY FOR MUTING
027B	4822 492 71357	SPRING FOR MUTING
031B	4822 502 12511	B.T.SCREW(W/W)
033B	4822 381 11417	LENS FOR MUTING
034B	4822 410 63358	BUTTON ASSY FOR POWER
038B	4822 413 31819	KNOB FOR VR/INPUT SELECTOR
039B	4822 413 31821	KNOB FOR REC SELECTOR
041B	4822 502 13636	PH.TAP.SCREW
048B		BADGE (208J251010)
001D		LID (TOP COVER) (136J257020)
002D	4822 502 13636	PH.TAP.SCREW
003D		SIDE PANEL L (208J249010)
004D		SIDE PANEL R (208J249020)
006D	4822 502 21338	SCREW FOR SIDE PANEL
002G	4822 462 42132	LEG
010G	4822 502 13636	PH.TAP.SCREW 3x8 (M)
012G	4822 502 13636	PH.TAP.SCREW 3x8 (M)
014G	4822 502 13636	PH.TAP.SCREW 3x8 (M)
018G	4822 502 13636	PH.TAP.SCREW 3x8 (M)
020G	4822 502 13636	PH.TAP.SCREW 3x8 (M)
022G	4822 502 13636	PH.TAP.SCREW 3x8 (M)
023G	4822 502 13636	PH.TAP.SCREW 3x8 (M)
026G	4822 502 13636	PH.TAP.SCREW 3x8 (M)
028G		H.HEAD BOLT,S.F (52040410M0)
034G	4822 502 13636	PH.TAP.SCREW 3x8 (M)
038G	4822 502 13636	PH.TAP.SCREW 3x8 (M)
040G	4822 502 13636	PH.TAP.SCREW 3x8 (M)
042G	4822 502 13636	PH.TAP.SCREW 3x8 (M)
044G	4822 462 71574	STOPPER
045G		T.L. WASHER (54050400M0)
046G		T.L. WASHER (54050400M0)
048G	4822 502 13636	PH.TAP.SCREW 3x8 (M)
049G		T.L. WASHER (54050400M0)
902G	4822 502 13636	PH.TAP.SCREW 3x8 (M)
903G	4822 502 13636	PH.TAP.SCREW 3x8 (M)
905G	4822 325 50202	BUSHING, AC CORD
907G		HEXAGON NUT (53110303M0)
911G	4822 502 13636	PH.TAP.SCREW 3x8 (M)
914G	4822 502 13636	PH.TAP.SCREW 3x8 (M)
916G	4822 502 13636	PH.TAP.SCREW 3x8 (M)
917G	4822 502 13636	PH.TAP.SCREW 3x8 (M)
920G	4822 502 13315	B.T.SCREW(W/TL)
005L	4822 502 13636	PH.TAP.SCREW 3x8 (M)
006L	4822 502 13636	PH.TAP.SCREW 3x8 (M)
009L	4822 502 13636	PH.TAP.SCREW 3x8 (M)
012L	4822 502 21337	F.WASHER SCREW
016L	4822 502 13315	B.T.SCREW(W/TL)
C001	4822 124 80957	ELECT CAP, 22000μF 80V x 2
⚠F001	4822 253 30358	FUSE, 5A 250V BS
J001	4822 290 81605	TERMINAL, SPK. 1P RED GLD
J002	4822 290 81605	TERMINAL, SPK. 1P RED GLD
J003	4822 290 81606	TERMINAL, SPK. 1P BLK GLD
J004	4822 290 81606	TERMINAL, SPK. 1P BLK GLD
J005	4822 267 31544	TERMINAL, GROUND GOLD
J006	4822 267 31818	JACK, FUSE HOLDER 7A 250V
J007	4822 264 10144	SHOTE PLUG FOR PHONO JACK L
J008	4822 264 10144	SHOTE PLUG FOR PHONO JACK R
⚠L001	4822 146 21791	POWER TRANSFORMER [W, K]

REF. DESIG.	PART NO.	DESCRIPTION
⚠W001	4822 321 10804	A.C.POWER CORD
		PACKING
001T	4822 736 22116	USER MANUAL PM-15(N)

5. TEST EQUIPMENT REQUIRED FOR SERVICING

Item 項　　目	Use 使　用　方　法
Distortion Analyzer 歪　　率　　計	Distortion measurements 歪の測定
Audio Oscillator 低　周　波　発　振　器	Sinewave and squarewave signal source 正弦波及び矩形波の信号源
AC VTVM A　C　　V　T　V　M	Voltage measurements (AC) 交流電圧の測定
Oscilloscope オ　ッ　シ　ロ　ス　コ　ー　プ	Waveform analysis and trouble shooting and ASO alignment 波計分析、トラブルシューティング及びASOの調整
DC VTVM D　C　　V　T　V　M	Voltage measurements (DC) 直流電圧の測定
AC Wattmeter 交　流　ワ　ッ　ト　メ　ー　タ　ー	Monitors primary power to amplifier アンプの一次側消費電力のモニター
Line Voltmeter 電　　源　　電　　圧　　計	Monitors potential of primary power to amplifier アンプの一次側消費電圧のモニター
Variable Autotransfomer ス　ラ　イ　ダ　ッ　ク	Adjust level of primary power to amplifier アンプの一次側電圧の調節
Circuit Tester テ　　ス　　タ　　ー	Trouble shooting トラブルシューティング
Shorting Plug シ　ョ　ー　ト　用　プ　ラ　グ	Shorts amplifier input to eliminate noise pickup 雑音を拾わないようにアンプ入力を短絡する

HDAM



アイドリング電流調整手順

1) 電源を投入しない状態で、マスターボリュームを最小の位置にセッティングします。さらにプリント基板P601 (L ch) 内の半固定抵抗 R635 及び、P701 (R ch) 内の半固定抵抗R735 を、それぞれ反時計方向に絞り切った状態にしておきます。

2) プリント基板P601 (L ch) 内のテストポイントコネクタ TP1: J605 の両端ピン又は、 TP2: J604 の両端ピンのどちらかのテストポイントに、直流電圧レンジとしたデジタルボルトメータを接続します。プリント基板P701 (R ch) 内のテストポイント TP1: J705 の両端ピン又は TP2: J704 の両端ピンのどちらかにも同様に直流電圧レンジとしたデジタルボルトメータを接続します。

3) 以上の準備が完了した後に、電源を投入します。40分後に P601 (L ch) 内の半固定抵抗 R635 と、P701 (R ch) 内の半固定抵抗R735 をそれぞれ時計方向に回して、デジタルボルトメータの指示を見ながら調整します。設定値は Lch, Rch 共に 36mV (100mA) です。

＜注意＞
(1) 電源電圧は AC100V ± 1% で調整して下さい。
(2) Lch, Rch 共に TP1 , TP2 の電圧を測定して、電流の多い方のコネクタで調整を行って下さい。

電源投入後経過時間	アイドリング電流調整値
30 秒後～ 1 分後	32mV ～ 45mV
1 分後～ 5 分後	36mV ～ 45mV
10 分後	39mV ～ 43mV

4) なお、ヒートラン及びエージング又は修理後のアイドリング調整は、約30分間無信号、無負荷で、電源投入状態で放置した後に、設定値がトランジスタ 1 本当り 36mV (100mA)になる様に調整します。

6. IDLING CURRENT ADJUSTMENT

1) Before switching the power ON, set the Master Volume Control to minimum position. Then, rotate the semi-fixed resistor R635 on the PC board P601 (L ch) and the semi-fixed resistor R735 on the PC board P701 (R ch) fully counterclockwise.

2) Connect a digital voltmeter, set for DC voltage input, to either the test point at the two extremities of the three connector pins TP1: J605 or TP2: J604 on the PC board P601 (L ch).
Also connect the digital voltmeter, set for DC voltage input, to either the test point connector pins TP1: J705 or TP2: J704 on the PC board P701 (R ch).

3) After the completion of the above setup, switch the power ON, and after 40 minutes, adjust the semi-fixed resistor R635 on the PC board P601 (L ch) and the semi-fixed resistor R735 on the PC board P701 (R ch) according to the reading of the digital voltmeter by rotating each of them clockwise.
Set the reading of the voltmeter for 36 mV (100mA) on both L ch and R ch.

NOTE:
(1) Be sure to perform this adjustment with the power supply AC voltage ±1%.
(2) Perform this adjustment connecting the digital voltmeter to the test point with higher current, after measuring the voltage of test points TP1 and TP2 on both L ch and R ch.

Elapsed time after power ON	Idling current setting value
30 sec. ~ 1 min.	32 mV ~ 45mV
1 min. ~ 5 min.	36 mV ~ 45mV
More than 10 min.	39 mV ~ 43mV

4) In the idling adjustment after heat-running, aging test or repair, perform the adjustment after leaving the unit for approx. 30 minutes applying no signal and no load in power ON condition so that the setting value becomes 36mV (100mA) for each transistor.

7. ELECTRICAL PARTS LIST

ASSIGNMENT OF COMMON PARTS CODES.

RESISTOR

R＊＊＊ : (1) GD05 xxx 140, Carbon film fixed resistor, ±5% 1/4W
R＊＊＊ : (2) GD05 xxx 160, Carbon film fixed resistor, ±5% 1/6W

① ——— Resistance value

Examples ;

① Resistance value

0.1 Ω.....001	10 Ω.....100	1 kΩ.....102	100 kΩ.....104
0.5 Ω.....005	18 Ω.....180	2.7 kΩ.....272	680 kΩ.....684
1 Ω.....010	100 Ω.....101	10 kΩ.....103	1 MΩ.....105
6.8 Ω.....068	390 Ω.....391	22 kΩ.....223	4.7 MΩ.....475

(Note) Please distinguish 1/4W from 1/6W by the shape of parts used actually.

C＊＊＊ : CERAMIC CAP.
(1) DD1x xxx 370, Ceramic capacitor
Disc type
① ② Temp. coeff. P350 ~ N1000, 50V
Capacity value
Tolerance

Examples ;

① Tolerance (Capacity deviation)

± 0.25pF 0
± 0.5pF 1
± 5% 5

＊Tolerance of COMMON PARTS handled here are as follows :

0.5pF ~ 5pF ..... ± 0.25pF
6pF ~ 10pF ..... ± 0.5pF
12pF ~ 560pF ..... ± 5%

② Capacity value

0.5 pF....005	3 pF.....030	100 pF.....101
1 pF....010	10 pF.....100	220 pF.....221
1.5 pF....015	47 pF.....470	560 pF.....561

C＊＊＊ : CERAMIC CAP.
(1) DK16 xxx 300, High dielectric constant ceramic capacitor
① Disc type
Temp. chara. 2B4, 50V
Capacity value

Examples ;

② Capacity value

100 pF.....101	1000 pF.....102	10000 pF.....103
470 pF.....471	2200 pF.....222	

C＊＊＊ : ELECTROLY CAP. (⇌), FILM CAP. (⇌)
(1) EA xxx xxx 10, Electrolytic capacitor
One-way lead type,
① ② Tolerance ± 20%
Working voltage
Capacity value

Examples ;

① Capacity value

0.1 µF.....104	4.7 µF.....475	100 µF.....107
0.33 µF.....334	10 µF.....106	330 µF.....337
1 µF.....105	22 µF.....226	1100 µF.....118
		2200 µF.....228

② Working voltage

6.3 V.....006	25 V.....025
10 V.....010	35 V.....035
16 V.....016	50 V.....050

(2) DF15 xxx 350, Plastic film capacitor
One-way type, Mylar ± 5% 50V
① Capacity value

Examples ;

① Capacity value

0.001 µF (1000pF) 102	0.1 µF.....104
0.0018 µF.....182	0.56 µF.....564
0.01 µF.....103	1 µF.....105
0.015 µF.....153	

NOTE : The above CODES (R＊＊＊, R＊＊＊, C＊＊＊, C＊＊＊ and C＊＊＊) are omitted on the schematic diagram in some case.
On the occasion, be confirmed common parts on the parts list.

REF. DESIG.	PART NO.	DESCRIPTION
		P101-SPK. PROTECTOR CIRCUIT BOARD
		P101-CAPACITORS
C101	4822 121 70324	FILM 0.039 µF ± 5% 100V
C102	4822 121 70324	FILM 0.039 µF ± 5% 100V
C103	4822 124 22273	ELECT 0.47 µF ± 20% 50V
C104	4822 121 70321	FILM 0.01 µF ± 5% 100V
C105	4822 124 22276	ELECT 47 µF ± 20% 50V
C106	4822 124 22276	ELECT 47 µF ± 20% 50V
C107	4822 122 40617	CERAMIC 0.1 µF +80%-20% 50V
C108	4822 124 22273	ELECT 0.47 µF ± 20% 50V
C109	4822 124 80543	ELECT 10 µF 35V
C110	4822 124 80543	ELECT 10 µF 35V
		P101-RESISTORS
R101	4822 053 10688	6.8Ω ± 5% 1W
R102	4822 053 10688	6.8Ω ± 5% 1W
R103	4822 111 20415	27KΩ ± 1% 1/4W
R104	4822 111 20415	27KΩ ± 1% 1/4W
R105	4822 111 20417	6.8KΩ ± 1% 1/4W
R106	4822 111 20415	27KΩ ± 1% 1/4W
R107	4822 111 20415	27KΩ ± 1% 1/4W
R108	4822 050 24708	4.7Ω ± 5% 1/4W
R109	4822 050 24708	4.7Ω ± 5% 1/4W
R110 ∫ R112	4822 111 20431	68KΩ ± 1% 1/4W
R113	4822 111 20421	100KΩ ± 1% 1/4W
R114	4822 111 20428	47KΩ ± 1% 1/4W
R115	4822 111 20426	33KΩ ± 1% 1/4W
R116	4822 111 20423	220KΩ ± 1% 1/4W
R117	4822 111 20419	10KΩ ± 1% 1/4W
R118	4822 111 20419	10KΩ ± 1% 1/4W
R119	4822 111 20426	33KΩ ± 1% 1/4W
R120	4822 111 20417	6.8KΩ ± 1% 1/4W
R122	4822 111 20431	68KΩ ± 1% 1/4W
R123	4822 111 20422	15Ω ± 1% 1/4W
		P101-SEMICONDUCTORS
D101	4822 130 80837	DIODE, HSS81TD 150V 150MA
D102	4822 130 80837	DIODE, HSS81TD 150V 150MA
D103	4822 130 80839	DIODE, S5688G VRM=400V IO=1A
Q101	4822 209 83312	IC, TA7317P
Q102	4822 130 42951	TRANSISTOR 2SA970 (GR, BL)
Q103	4822 130 43233	TRANSISTOR 2SC2240 (GR, BL)
Q104	4822 130 43233	TRANSISTOR 2SC2240 (GR, BL)
		P101-MISCELLANEOUS
L101	4822 157 52453	COIL, 0.5µH
L102	4822 157 52453	COIL, 0.5µH
L103	4822 280 20555	RELAY, JC2AD-DC24V
L104	4822 158 60605	FERRITE CORE, BEADS
L105	4822 158 60605	FERRITE CORE, BEADS
		P151-VOLUME CIRCUIT BOARD
		P151-RESISTORS
R151	4822 100 12011	VARIABLE RESIST 25KΩX2+2KΩ
		P201-INPUT, REC SELECTOR CIRCUIT BOARD
		P201-CAPACITORS
C222	4822 124 41539	ELECT 47 µF ± 20% 16V
C223	4822 124 90352	ELECT 10 µF ± 20% 16V
C224	4822 122 40617	CERAMIC 0.1 µF +80%-20% 50V
C＊＊＊		**P201-CAPACITORS (COMMON)** HIGH DIELECTRIC CONSTANT CERAMIC CAPACITOR , ±10% 50V: C225

REF. DESIG.	PART NO.	DESCRIPTION
C***		PLASTIC FILM CAPACITOR, ±5% 50V: C201~C221
		P201-RESISTORS
R224	4822 050 21022	1KΩ ± 5% 1/4W
		P201-RESISTORS (COMMON)
R***		CARBON FILM FIXED RESISTOR, ±5% 1/6W: R201~R223, R225~R233
		P201-SEMICONDUCTORS
D201	4822 130 80322	ZENER DIODE, 04AZ16, MTZJ16A, RD15ES
D202	4822 130 33305	DIODE, 1SS176, MA165, 1SS254 30V 0.1A
Q201 ~ Q221	4822 130 42594	DIGITAL TRANSISTOR, DTC144ES
Q222	4822 209 70069	IC, TC9130P
Q223	4822 130 61439	TRANSISTOR, 2SB1237 (R)
Q224	4822 130 42715	TRANSISTOR, 2SA608SP, 2SA1048, 2SA1309, 2SA933S
Q225	4822 130 42594	DIGITAL TRANSISTOR, DTC144ES
		P201-MISCELLANEOUS
S201	4822 273 10286	ROTARY SWITCH, INPUT SEL.
S202	4822 273 10287	ROTARY SWITCH, REC SEL.
		P251-INPUT TERMINAL CIRCUIT BOARD
		P251-CAPACITORS
C251	4822 122 40617	CERAMIC 0.1 µF +80%-20% 50V
C252	4822 122 40617	CERAMIC 0.1 µF +80%-20% 50V
C253	4822 121 70319	FILM 470 PF ± 5%
C254	4822 121 70319	FILM 470 PF ± 5%
C255 ~ C275	4822 124 23053	ELECT 1 µF 50V
		P251-RESISTORS (COMMON)
R***		CARBON FILM FIXED RESISTOR, ±5% 1/6W: R251~R278
		P251-MISCELLANEOUS
J251 ~ J261	4822 290 81671	TERMINAL, 2P RCA PIN (GOLD)
L251 ~ L271	4822 280 20554	RELAY, HX2-24V
S251	4822 277 21756	SLIDE SWITCH, MM/MC SW
		P291-MUTING SW. CIRCUIT BOARD
		P291-CAPACITOR
C292	4822 122 30043	CERAMIC 0.01 µF +80%-20% 50V
		P291-CAPACITORS (COMMON)
C***		HIGH DIELECTRIC CONSTANT CERAMIC CAPACITOR, ±10% 50V: C291
		P291-SEMICONDUCTOR
D291	4822 130 80326	L.E.D. LT3D8B RED 3O
		P291-MISCELLANEOUS
S291	4822 276 13537	PUSH SWITCH, MUTING

REF. DESIG.	PART NO.	DESCRIPTION
		P351-XLR CONNECTOR CIRCUIT BOARD
		P351-CAPACITORS
C351	4822 126 12496	CERAMIC 0.01 µF +80% -20% 50V
C352	4822 126 12496	CERAMIC 0.01 µF +80% -20% 50V
		P351-MISCELLANEOUS
J351	4822 267 31645	PLUG, XLB-3-31PCV-M01
J352	4822 267 31645	PLUG, XLB-3-31PCV-M01
		P391-CONNECTOR CIRCUIT BOARD
		P391-CAPACITORS
C391	4822 124 80543	ELECT 10 µF 35V
		P391-MISCELLANEOUS
L391	4822 158 60605	FERRITE CORE, BEADS
		P401-PHONO, BALANCE, VOLUME AMP CIRCUIT BOARD
		P401-CAPACITORS
C301	4822 121 70319	FILM 470 PF ± 5%
C302	4822 121 70319	FILM 470 PF ± 5%
C303 ~ C306	4822 121 43811	MICA 18 PF ± 5% 500V
C307	4822 123 30089	MICA 22 PF ± 5% 500V
C308	4822 123 30089	MICA 22 PF ± 5% 500V
C309	4822 124 23774	ELECT, N.-P. 22 µF 25V
C310	4822 124 23774	ELECT, N.-P. 22 µF 25V
C311	4822 121 70323	FILM 3300 PF ± 5% 100V
C312	4822 121 70323	FILM 3300 PF ± 5% 100V
C313 ~ C316	4822 124 23649	ELECT 470 µF 25V
C401	4822 121 70316	FILM 100 PF ± 5%
C402	4822 121 70316	FILM 100 PF ± 5%
C403	4822 121 70324	FILM 0.039 µF ± 5% 100V
C404	4822 121 70324	FILM 0.039 µF ± 5% 100V
C405	4822 121 70321	FILM 0.01 µF ± 5% 100V
C406	4822 121 70321	FILM 0.01 µF ± 5% 100V
C407 ~ C410	4822 121 70317	FILM 1000 PF ± 5% 50V
C411	4822 121 70323	FILM 3300 PF ± 5% 100V
C412	4822 121 70323	FILM 3300 PF ± 5% 100V
C413	4822 124 23774	ELECT, N.-P. 22 µF 25V
C414	4822 124 23774	ELECT, N.-P. 22 µF 25V
C415	4822 121 70317	FILM 1000 PF ± 5% 50V
C416	4822 121 70317	FILM 1000 PF ± 5% 50V
C417	4822 124 80123	ELECT 220 µF 16V
C418	4822 124 80123	ELECT 220 µF 16V
C419 ~ C422	4822 124 23649	ELECT 470 µF 25V
C501	4822 121 70319	FILM 470 PF ± 5%
C502	4822 121 70319	FILM 470 PF ± 5%
C503	4822 124 80958	ELECT 470 µF 16V
C504	4822 124 80958	ELECT 470 µF 16V
C505	4822 123 30086	MICA 47 PF ± 5% 500V
C506	4822 123 30086	MICA 47 PF ± 5% 500V
C507 ~ C510	4822 123 30089	MICA 22 PF ± 5% 500V
C511	4822 121 70316	FILM 100 PF ± 5%
C512	4822 121 70316	FILM 100 PF ± 5%
C513	4822 121 43927	FILM 150 PF ± 5%
C514	4822 121 43927	FILM 150 PF ± 5%

REF. DESIG.	PART NO.	DESCRIPTION
C515 ~ C518	4822 124 80958	ELECT 470 µF 16V
		P401-RESISTORS
R301 ~ R304	4822 111 20419	10KΩ ± 1% 1/4W
R305 ~ R308	4822 111 20413	220Ω ± 1% 1/4W
R309 ~ R316	4822 111 20422	15Ω ± 1% 1/4W
R317 ~ R324	4822 111 20414	2.2KΩ ± 1% 1/4W
R325	4822 111 20426	33KΩ ± 1% 1/4W
R326	4822 111 20426	33KΩ ± 1% 1/4W
R327 ~ R330	4822 111 20407	100.0Ω ± 1% 1/4W
R331 ~ R334	4822 111 20422	15Ω ± 1% 1/4W
R335	4822 111 20421	100KΩ ± 1% 1/4W
R336	4822 111 20421	100KΩ ± 1% 1/4W
R337	4822 111 20416	330Ω ± 1% 1/4W
R338	4822 111 20416	330Ω ± 1% 1/4W
R339 ~ R342	4822 052 10339	33Ω ± 5% 1/4W
R401	4822 111 20409	12Ω ± 1% 1/4W
R402	4822 111 20409	12Ω ± 1% 1/4W
R403	4822 111 20428	47KΩ ± 1% 1/4W
R404	4822 111 20428	47KΩ ± 1% 1/4W
R405	4822 111 20411	150Ω ± 1% 1/4W
R406	4822 111 20411	150Ω ± 1% 1/4W
R407	4822 111 20409	12Ω ± 1% 1/4W
R408	4822 111 20409	12Ω ± 1% 1/4W
R409	4822 111 20418	82KΩ ± 1% 1/4W
R410	4822 111 20418	82KΩ ± 1% 1/4W
R411	4822 111 20417	6.8KΩ ± 1% 1/4W
R412	4822 111 20417	6.8KΩ ± 1% 1/4W
R417	4822 111 20416	330Ω ± 1% 1/4W
R418	4822 111 20416	330Ω ± 1% 1/4W
R419 ~ R422	4822 111 20407	100.0Ω ± 1% 1/4W
R423 ~ R426	4822 111 20422	15Ω ± 1% 1/4W
R427	4822 111 20421	100KΩ ± 1% 1/4W
R428	4822 111 20421	100KΩ ± 1% 1/4W
R429	4822 111 20416	330Ω ± 1% 1/4W
R430	4822 111 20416	330Ω ± 1% 1/4W
R431 ~ R434	4822 052 10339	33Ω ± 5% 1/4W
R501	4822 111 20413	220Ω ± 1% 1/4W
R502	4822 111 20413	220Ω ± 1% 1/4W
R503	4822 111 20423	220KΩ ± 1% 1/4W
R504	4822 111 20423	220KΩ ± 1% 1/4W
R505	4822 111 20416	330Ω ± 1% 1/4W
R506	4822 111 20416	330Ω ± 1% 1/4W
R507	4822 111 20414	2.2KΩ ± 1% 1/4W
R508	4822 111 20414	2.2KΩ ± 1% 1/4W
R509 ~ R512	4822 111 20426	33KΩ ± 1% 1/4W

REF. DESIG.	PART NO.	DESCRIPTION
R513 ~ R520	4822 111 20407	100.0Ω ± 1% 1/4W
R521 ~ R528	4822 111 20422	15Ω ± 1% 1/4W
R529 ~ R532	4822 111 20419	10KΩ ± 1% 1/4W
R533 ~ R536	4822 111 20413	220Ω ± 1% 1/4W
R537 ~ R540	4822 111 20408	1KΩ ± 1% 1/4W
R541	4822 111 20419	10KΩ ± 1% 1/4W
R542	4822 111 20419	10KΩ ± 1% 1/4W
R543 ~ R546	4822 052 10479	47Ω ± 5% 1/4W
		P401-RESISTORS (COMMON)
R***		CARBON FILM FIXED RESISTOR, ±5% 1/4W R413~R416
		P401-SEMICONDUCTORS
D401	4822 124 23053	ELECT 1 µF 50V
Q301 ~ Q304	5322 130 41844	F.E.T. 2SK170 (BL) VGDS=-40V PD=0.4V
Q305 ~ Q308	4822 130 62649	F.E.T. 2SJ74 (BL) VGDS=25V PD=24W
Q309 ~ Q312	5322 130 41844	F.E.T. 2SK170 (BL) VGDS=-40V PD=0.4V
Q313 ~ Q316	4822 130 62649	F.E.T. 2SJ74 (BL) VGDS=25V PD=24W
Q317	5322 130 41844	F.E.T. 2SK170 (BL) VGDS=-40V PD=0.4V
Q318	5322 130 41844	F.E.T. 2SK170 (BL) VGDS=-40V PD=0.4V
Q319	4822 130 62649	F.E.T. 2SJ74 (BL) VGDS=25V PD=24W
Q320	4822 130 62649	F.E.T. 2SJ74 (BL) VGDS=25V PD=24W
Q321	4822 209 32385	AMP MODULE
Q322	4822 209 32385	AMP MODULE
Q401	4822 209 32385	AMP MODULE
Q402	4822 209 32385	AMP MODULE
Q403	5322 130 41844	F.E.T. 2SK170 (BL) VGDS=-40V PD=0.4V
Q404	5322 130 41844	F.E.T. 2SK170 (BL) VGDS=-40V PD=0.4V
Q405	4822 130 62649	F.E.T. 2SJ74 (BL) VGDS=25V PD=24W
Q406	4822 130 62649	F.E.T. 2SJ74 (BL) VGDS=25V PD=24W
Q501 ~ Q504	4822 209 32385	AMP MODULE
Q505	5322 130 41844	F.E.T. 2SK170 (BL) VGDS=-40V PD=0.4V
Q506	5322 130 41844	F.E.T. 2SK170 (BL) VGDS=-40V PD=0.4V
Q507	4822 130 62649	F.E.T. 2SJ74 (BL) VGDS=25V PD=24W
Q508	4822 130 62649	F.E.T. 2SJ74 (BL) VGDS=25V PD=24W

REF. DESIG.	PART NO.	DESCRIPTION
Q509	5322 130 41844	F.E.T. 2SK170 (BL) VGDS=-40V PD=0.4V
Q510	5322 130 41844	F.E.T. 2SK170 (BL) VGDS=-40V PD=0.4V
Q511	4822 130 62649	F.E.T. 2SJ74 (BL) VGDS=25V PD=24W
Q512	4822 130 62649	F.E.T. 2SJ74 (BL) VGDS=25V PD=24W
Q513	4822 209 70226	IC, NJM5534D
Q514	4822 209 70226	IC, NJM5534D
		P401-MISCELLANEOUS
L401	4822 280 20554	RELAY, HX2-24V
		P601-POWER AMP. L CIRCUIT BOARD
		P601-CAPACITORS
C601	4822 121 43927	FILM 150 PF ± 5%
C602	4822 123 30089	MICA 22 PF ± 5%
C603	4822 121 42691	FILM 2200 PF ± 5% 160V
C604	4822 121 70324	FILM 0.039 µF ± 5% 100V
C605	4822 121 70324	FILM 0.039 µF ± 5% 100V
C606	4822 121 43928	FILM 330 PF ± 5%
C607	4822 124 80578	ELECT 22 µF 25V
C608	4822 121 70321	FILM 0.01 µF ± 5% 100V
C609	4822 121 70322	FILM 0.1 µF ± 5% 100V
C610	4822 121 70321	FILM 0.01 µF ± 5% 100V
C611	4822 124 22719	ELECT 100 µF 100V
C612	4822 124 22719	ELECT 100 µF 100V
C613	4822 124 80542	ELECT, N.-P. 10 µF ± 20% 63V
C614	4822 124 80542	ELECT, N.-P. 10 µF ± 20% 63V
C615	4822 124 80123	ELECT 220 µF 16V
C616	4822 124 80123	ELECT 220 µF 16V
		P601-RESISTORS
R601	4822 111 20412	1.5KΩ ± 1% 1/4W
R602	4822 111 20424	24KΩ ± 1% 1/4W
R603	4822 111 20412	1.5KΩ ± 1% 1/4W
R604	4822 111 20424	24KΩ ± 1% 1/4W
R605	4822 111 20419	10KΩ ± 1% 1/4W
R606	4822 111 20413	220Ω ± 1% 1/4W
R607	4822 111 20407	100.0Ω ± 1% 1/4W
R608	4822 111 20407	100.0Ω ± 1% 1/4W
R609	4822 111 20422	15Ω ± 1% 1/4W
R610	4822 111 20422	15Ω ± 1% 1/4W
R611	4822 111 20428	47KΩ ± 1% 1/4W
R612	4822 111 20428	47KΩ ± 1% 1/4W
R613	4822 111 20426	33KΩ ± 1% 1/4W
R614 ∫ R617	4822 111 20414	2.2KΩ ± 1% 1/4W
R618	4822 111 20431	68KΩ ± 1% 1/4W
R619	4822 111 20416	330Ω ± 1% 1/4W
R620	4822 111 20416	330Ω ± 1% 1/4W
R621	4822 111 20427	330KΩ ± 1% 1/4W
R622	4822 111 20427	330KΩ ± 1% 1/4W
R623	4822 111 20417	6.8KΩ ± 1% 1/4W
R624	4822 111 20425	2.7KΩ ± 1% 1/4W
R625	4822 052 10101	100Ω ± 5% 1/6W
R626	4822 052 10101	100Ω ± 5% 1/6W
R627	4822 050 24701	470Ω ± 5% 1/4W
R628	4822 050 24701	470Ω ± 5% 1/4W
R629	4822 050 26809	68Ω ± 5% 1/6W
R630	4822 050 26809	68Ω ± 5% 1/6W
R631 ∫ R634	4822 052 10109	10Ω ± 5% 1/6W
R635	4822 101 30707	2.2KΩ TRIMMING IDLING ADJ.
R636	4822 053 10221	220Ω ± 5% 1W
R637	4822 111 91002	0.18Ω X2 5W COMPO.
R638	4822 111 91002	0.18Ω X2 5W COMPO.

REF. DESIG.	PART NO.	DESCRIPTION
R639	4822 050 23322	3.3KΩ ± 5% 1/4W
R640	4822 050 21502	1.5KΩ ± 5% 1/4W
R641	4822 052 10479	47Ω ± 5% 1/4W
R642	4822 052 10479	47Ω ± 5% 1/4W
R643 ∫ R646	4822 117 11415	680Ω ± 5% 3W
R649	4822 111 20419	10KΩ ± 1% 1/4W
R650	4822 111 20429	5.1KΩ ± 1% 1/4W
R651	4822 111 20419	10KΩ ± 1% 1/4W
R652	4822 111 20415	27KΩ ± 1% 1/4W
R653	4822 111 20409	12Ω ± 1% 1/4W
R654	4822 111 20414	2.2KΩ ± 1% 1/4W
R***		**P601-RESISTORS (COMMON)** CARBON FILM FIXED RESISTOR, ±5% 1/4W R647, R648
		P601-SEMICONDUCTORS
D601 ∫ D604	4822 130 80272	ZENER DIODE, 04AZ7.5, MTZJ7.5C, RD7.5ES
D605	4822 130 33305	DIODE, 1SS176, MA165, 1SS254 30V 0.1A
D606	4822 130 33305	DIODE, 1SS176, MA165, 1SS254 30V 0.1A
D607	4822 130 80132	ZENER DIODE, 04AZ3.9, MTZJ3.9A, RD3.9ES
D608	4822 130 80132	ZENER DIODE, 04AZ3.9, MTZJ3.9A, RD3.9ES
D609	4822 130 33305	DIODE, 1SS176, MA165, 1SS254 30V 0.1A
D610	4822 130 33305	DIODE, 1SS176, MA165, 1SS254 30V 0.1A
D611	4822 130 80272	ZENER DIODE, 04AZ7.5, MTZJ7.5C, RD7.5ES
D612	4822 130 80272	ZENER DIODE, 04AZ7.5, MTZJ7.5C, RD7.5ES
D613	4822 130 80837	DIODE, HSS81TD 150V 150MA
D614	4822 130 80837	DIODE, HSS81TD 150V 150MA
Q601	4822 209 32385	AMP MODULE
Q602	5322 130 41844	F.E.T. 2SK170 (BL) VGDS=-40V PD=0.4V
Q603	4822 130 62649	F.E.T. 2SJ74 (BL) VGDS=25V PD=24W
Q604	4822 130 43233	TRANSISTOR, 2SC2240 (GR, BL)
Q605	4822 130 42951	TRANSISTOR, 2SA970 (GR, BL)
Q606	4822 130 42951	TRANSISTOR, 2SA970 (GR, BL)
Q607	4822 130 43233	TRANSISTOR, 2SC2240 (GR, BL)
Q608	4822 130 63634	TRANSISTOR, 2SA1837 (O, Y)
Q609	4822 130 63635	TRANSISTOR, 2SC4793 (O, Y)
Q610	4822 130 60526	TRANSISTOR, 2SD1508
Q611	4822 130 43283	TRANSISTOR, 2SC2705 (O, Y)
Q612	4822 130 42999	TRANSISTOR, 2SA1145 (O, Y)
Q613	4822 130 63635	TRANSISTOR, 2SC4793 (O, Y)
Q614	4822 130 63634	TRANSISTOR, 2SA1837 (O, Y)
Q615	4822 130 43303	TRANSISTOR, 2SC2922 (Y, P)
Q616	4822 130 43015	TRANSISTOR, 2SA1216 (Y, P)
Q617	4822 130 43303	TRANSISTOR, 2SC2922 (Y, P)
Q618	4822 130 43015	TRANSISTOR, 2SA1216 (Y, P)
Q619	4822 209 33659	IC, NJMOP-07D
Q620	4822 209 70226	IC, NJM5534D
		P701-POWER AMP. R CIRCUIT BOARD
		P701-CAPACITORS
C701	4822 121 43927	FILM 150PF ± 5%
C702	4822 123 30089	MICA 22PF ± 5%
C703	4822 121 42691	FILM 2200PF ± 5% 160V
C704	4822 121 70324	FILM 0.039µF ± 5% 100V

REF. DESIG.	PART NO.	DESCRIPTION
C705	4822 121 70324	FILM 0.039 µF ± 5% 100V
C706	4822 121 43928	FILM 330 PF ± 5%
C707	4822 124 80578	ELECT 22 µF 25V
C708	4822 121 70321	FILM 0.01 µF ± 5% 100V
C709	4822 121 70322	FILM 0.1 µF ± 5% 100V
C710	4822 121 70321	FILM 0.01 µF ± 5% 100V
C711	4822 124 22719	ELECT 100 µF 100V
C712	4822 124 22719	ELECT 100 µF 100V
C713	4822 124 80542	ELECT, N.-P. 10 µF ± 20% 63V
C714	4822 124 80542	ELECT, N.-P. 10 µF ± 20% 63V
C715	4822 124 80123	ELECT 220 µF 16V
C716	4822 124 80123	ELECT 220 µF 16V
		P701-RESISTORS
R701	4822 111 20412	1.5KΩ ± 1% 1/4W
R702	4822 111 20424	24KΩ ± 1% 1/4W
R703	4822 111 20412	1.5KΩ ± 1% 1/4W
R704	4822 111 20424	24KΩ ± 1% 1/4W
R705	4822 111 20419	10KΩ ± 1% 1/4W
R706	4822 111 20413	220Ω ± 1% 1/4W
R707	4822 111 20407	100.0Ω ± 1% 1/4W
R708	4822 111 20407	100.0Ω ± 1% 1/4W
R709	4822 111 20422	15Ω ± 1% 1/4W
R710	4822 111 20422	15Ω ± 1% 1/4W
R711	4822 111 20428	47KΩ ± 1% 1/4W
R712	4822 111 20428	47KΩ ± 1% 1/4W
R713	4822 111 20426	33KΩ ± 1% 1/4W
R714		
⟆	4822 111 20414	2.2KΩ ± 1% 1/4W
R717		
R718	4822 111 20431	68KΩ ± 1% 1/4W
R719	4822 111 20416	330Ω ± 1% 1/4W
R720	4822 111 20416	330Ω ± 1% 1/4W
R721	4822 111 20427	330KΩ ± 1% 1/4W
R722	4822 111 20427	330KΩ ± 1% 1/4W
R723	4822 111 20417	6.8KΩ ± 1% 1/4W
R724	4822 111 20425	2.7KΩ ± 1% 1/4W
R725	4822 052 10101	100Ω ± 5% 1/6W
R726	4822 052 10101	100Ω ± 5% 1/6W
R727	4822 050 24701	470Ω ± 5% 1/4W
R728	4822 050 24701	470Ω ± 5% 1/4W
R729	4822 050 26809	68Ω ± 5% 1/6W
R730	4822 050 26809	68Ω ± 5% 1/6W
R731		
⟆	4822 052 10109	10Ω ± 5% 1/6W
R734		
R735	4822 101 30707	2.2KΩ TRIMMING IDLING ADJ
R736	4822 053 10221	220Ω ± 5% 1W
R737	4822 111 91002	0.18Ω X2 5W COMPO.
R738	4822 111 91002	0.18Ω X2 5W COMPO.
R739	4822 050 23322	3.3KΩ ± 5% 1/4W
R740	4822 050 21502	1.5KΩ ± 5% 1/4W
R741	4822 052 10479	47Ω ± 5% 1/4W
R742	4822 052 10479	47Ω ± 5% 1/4W
R743		
⟆	4822 117 11415	680Ω ± 5% 3W
R746		
R749	4822 111 20419	10KΩ ± 1% 1/4W
R750	4822 111 20429	5.1KΩ ± 1% 1/4W
R751	4822 111 20419	10KΩ ± 1% 1/4W
R752	4822 111 20415	27KΩ ± 1% 1/4W
R753	4822 111 20409	12Ω ± 1% 1/4W
R754	4822 111 20414	2.2KΩ ± 1% 1/4W
		P701-RESISTORS (COMMON)
R***		CARBON FILM FIXED RESISTOR, ±5% 1/4W R747, R748

REF. DESIG.	PART NO.	DESCRIPTION
		P701-SEMICONDUCTORS
D701		
⟆	4822 130 80272	ZENER DIODE, 04AZ7.5, MTZJ7.5C, RD7.5ES
D704		
D705	4822 130 33305	DIODE, 1SS176, MA165, 1SS254 30V 0.1A
D706	4822 130 33305	DIODE, 1SS176, MA165, 1SS254 30V 0.1A
D707	4822 130 80132	ZENER DIODE, 04AZ73.9-X
D708	4822 130 80132	ZENER DIODE, 04AZ73.9-X
D709	4822 130 33305	DIODE, 1SS176, MA165, 1SS254 30V 0.1A
D710	4822 130 33305	DIODE, 1SS176, MA165, 1SS254 30V 0.1A
D711	4822 130 80272	ZENER DIODE, 04AZ7.5, MTZJ7.5C, RD7.5ES
D712	4822 130 80272	ZENER DIODE, 04AZ7.5, MTZJ7.5C, RD7.5ES
D713	4822 130 80837	DIODE, HSS81TD 150V 150MA
D714	4822 130 80837	DIODE, HSS81TD 150V 150MA
Q701	4822 209 32385	AMP MODULE
Q702	5322 130 41844	F.E.T. 2SK170 (BL) VGDS=-40V PD=0.4V
Q703	4822 130 62649	F.E.T. 2SJ74 (BL) VGDS=25V PD=24W
Q704	4822 130 43233	TRANSISTOR, 2SC2240 (GR, BL)
Q705	4822 130 42951	TRANSISTOR, 2SA970 (GR, BL)
Q706	4822 130 42951	TRANSISTOR, 2SA970 (GR, BL)
Q707	4822 130 43233	TRANSISTOR, 2SC2240 (GR, BL)
Q708	4822 130 63634	TRANSISTOR, 2SA1837 (O, Y)
Q709	4822 130 63635	TRANSISTOR, 2SC4793 (O, Y)
Q710	4822 130 60526	TRANSISTOR, 2SD1508
Q711	4822 130 43283	TRANSISTOR, 2SC2705 (O, Y)
Q712	4822 130 42999	TRANSISTOR, 2SA1145 (O, Y)
Q713	4822 130 63635	TRANSISTOR, 2SC4793 (O, Y)
Q714	4822 130 63634	TRANSISTOR, 2SA1837 (O, Y)
Q715	4822 130 43303	TRANSISTOR, 2SC2922 (Y, P)
Q716	4822 130 43015	TRANSISTOR, 2SA1216 (Y, P)
Q717	4822 130 43303	TRANSISTOR, 2SC2922 (Y, P)
Q718	4822 130 43015	TRANSISTOR, 2SA1216 (Y, P)
Q719	4822 209 33659	IC, NJMOP-07D
Q720	4822 209 70226	IC, NJM5534D
		P801-PRE AMP. POWER SUPPLY CIRCUIT BOARD
		P801-CAPACITORS
C801	4822 124 80956	ELECT 6800 µF 35V
C802	4822 124 80956	ELECT 6800 µF 35V
C803		
⟆	4822 124 80119	ELECT 100 µF 25V
C806		
⚠G801	4822 121 20263	COMP. SPARK KILLER 0.47 µF+6.8Ω
		P801-RESISTORS
R801	4822 050 21108	1Ω ± 5% 1/2W
R802	4822 050 21108	1Ω ± 5% 1/2W
R803	4822 111 20407	100.0Ω ± 1% 1/4W
R804	4822 111 20407	100.0Ω ± 1% 1/4W
R805	4822 117 10158	1Ω ± 5% 1/4W
R806	4822 117 10158	1Ω ± 5% 1/4W
R807		
⟆	4822 111 20408	1KΩ ± 1% 1/4W
R810		
R811	4822 116 60424	100Ω ± 5% 2W
R812	4822 053 10689	68Ω ± 5% 1W
		P801-SEMICONDUCTORS
⚠D801		
⟆	4822 130 80839	DIODE, S5688G VRM=400V IO=1A
⚠D808		
D809	4822 130 83385	ZENER DIODE, HZ20L-1
D810	4822 130 83385	ZENER DIODE, HZ20L-1

REF. DESIG.	PART NO.	DESCRIPTION
D811	4822 130 33305	DIODE, 1SS176, MA165, 1SS254 30V 0.1A
D812	4822 130 33305	DIODE, 1SS176, MA165, 1SS254 30V 0.1A
Q801	4822 130 63292	TRANSISTOR, 2SD1417
Q802	4822 130 63291	TRANSISTOR, 2SB1022
Q803	4822 130 42835	F.E.T. 2SK246 (GR)
Q804	4822 130 42835	F.E.T. 2SK246 (GR)
		P801-MISCELLANEOUS
L801	4822 158 60605	FERRITE CORE, BEADS
L802	4822 158 60605	FERRITE CORE, BEADS
L803	4822 158 60605	FERRITE CORE, BEADS
		P841-POWER IND. RAMP CIRCUIT BOARD
		P841-MISCELLANEOUS
M841	4822 134 40925	LAMP, 8V 100MA (BLUE)
		P851-POWER SUPPLY CIRCUIT BOARD
		P851-CAPACITORS
C851	4822 124 80955	ELECT 680 µF 80V
C852	4822 124 80955	ELECT 680 µF 80V
C861	4822 124 23918	ELECT 1000 µF 50V
C862	4822 124 23918	ELECT 1000 µF 50V
C863	4822 124 80119	ELECT 100 µF 25V
C864	4822 124 80119	ELECT 100 µF 25V
C865	4822 124 41543	ELECT 1 µF ± 20% 50V
⚠G851	4822 121 20263	COMP. SPARK KILLER 0.47 µF+6.8Ω
		P851-RESISTORS
R851 ~ R854	4822 111 20419	10KΩ ± 1% 1/4W
R855	4822 050 21108	1Ω ± 5% 1/2W
R856	4822 050 21108	1Ω ± 5% 1/2W
R857	4822 111 20407	100.0Ω ± 1% 1/4W
R858	4822 117 10158	1Ω ± 5% 1/4W
R859	4822 111 20412	1.5KΩ ± 1% 1/4W
R860	4822 111 20412	1.5KΩ ± 1% 1/4W
R861	4822 111 90731	47Ω ± 2% 1/4W FUSE
R862	4822 111 20415	27KΩ ± 1% 1/4W
R863	4822 111 20419	10KΩ ± 1% 1/4W
		P851-SEMICONDUCTORS
⚠D851 ~ ⚠D862	4822 130 80839	DIODE, S5688G VRM=400V IO=1A
D863	4822 130 33433	ZENER DIODE, RD24E B4 1/2W
D864	4822 130 33305	DIODE, 1SS176, MA165, 1SS254 30V 0.1A
⚠D865 ~ ⚠D868	4822 130 80839	DIODE, S5688G VRM=400V IO=1A
Q851	4822 130 63292	TRANSISTOR, 2SD1417
Q852	4822 130 42835	F.E.T. 2SK246 GR
		P851-MISCELLANEOUS
L851 ~ L855	4822 158 60605	FERRITE CORE, BEADS
		P891-RECTIFIER CIRCUIT BOARD
		P891-CAPACITOR
⚠G891	4822 121 20263	COMP. SPARK KILLER 0.47 µF+6.8Ω

REF. DESIG.	PART NO.	DESCRIPTION
⚠D891	4822 130 50315	DIODE,S10VB-20 10A 200V
		P901-POWER SW. CIRCUIT BOARD
		P901-CAPACITOR
C901	4822 121 43732	FILM 0.01 µF ± 20% 250V
		P901-MISCELLANEOUS
⚠S901	4822 276 12647	PUSH SWITCH, POWER
		PM11-PHONO MODULE L CH CIRCUIT BOARD
		PM11-RESISTORS
RM11	4822 117 11418	475Ω ± 1% 1/6W
RM12	4822 117 11418	475Ω ± 1% 1/6W
RM13	4822 117 11416	332Ω ± 1% 1/6W
RM14	4822 117 11416	332Ω ± 1% 1/6W
RM15	4822 117 11417	33.2KΩ ± 1% 1/6W
		PM11-SEMICONDUCTORS
DM11 ~ DM14	4822 130 33305	DIODE, 1SS176, MA165, 1SS254 30V 0.1A
QM11	4822 130 43315	TRANSISTOR, 2SC3329 (BL)
QM12	4822 130 43315	TRANSISTOR, 2SC3329 (BL)
QM13	4822 130 43025	TRANSISTOR, 2SA1316 (BL)
QM14	4822 130 43025	TRANSISTOR, 2SA1316 (BL)
QM15	4822 130 43233	TRANSISTOR, 2SC2240 (GR, BL)
QM16	4822 130 42951	TRANSISTOR, 2SA970 (GR, BL)
QM17	4822 130 42951	TRANSISTOR, 2SA970 (GR, BL)
QM18	4822 130 43233	TRANSISTOR, 2SC2240 (GR, BL)
		PM21-PHONO MODULE R CH CIRCUIT BOARD
		PM21-RESISTORS
RM21	4822 117 11418	475Ω ± 1% 1/6W
RM22	4822 117 11418	475Ω ± 1% 1/6W
RM23	4822 117 11416	332Ω ± 1% 1/6W
RM24	4822 117 11416	332Ω ± 1% 1/6W
RM25	4822 117 11417	33.2KΩ ± 1% 1/6W
		PM21-SEMICONDUCTORS
DM21 ~ DM24	4822 130 33305	DIODE, 1SS176, MA165, 1SS254 30V 0.1A
QM21	4822 130 43315	TRANSISTOR, 2SC3329 (BL)
QM22	4822 130 43315	TRANSISTOR, 2SC3329 (BL)
QM23	4822 130 43025	TRANSISTOR, 2SA1316 (BL)
QM24	4822 130 43025	TRANSISTOR, 2SA1316 (BL)
QM25	4822 130 43233	TRANSISTOR, 2SC2240 (GR, BL)
QM26	4822 130 42951	TRANSISTOR, 2SA970 (GR, BL)
QM27	4822 130 42951	TRANSISTOR, 2SA970 (GR, BL)
QM28	4822 130 43233	TRANSISTOR, 2SC2240 (GR, BL)

NOTE ON SAFETY

Symbol ⚠ Fire or electrical shock hazard. Only original parts should be used to replace any part marked with symbol ⚠. Any other component substitution (other than original type), may increase risk of fire or electrical shock hazard.